

ABSTRACT

Modified proteins are disclosed that maintain enzymatic and insecticidal activity while displaying reduced or eliminated allergenicity. Epitopes which bind to anti-patatin antibodies were identified, and removed via site directed mutagenesis. Tyrosines were observed to generally contribute to the allergenic properties of patatin proteins. Removal of glycosylation sites was observed to reduce or eliminate antibody binding.

Permuteins are also disclosed which have a rearranged amino acid sequence while retaining enzymatic activity.

Deallergenized proteins and permuteins can be used as insecticidal materials, as nutritional supplements, and as immunotherapeutic agents.